CLAIMS

What is claimed is:

1. A dual band transceiver architecture for wireless communication comprising:

a first transmitting/receiving antenna for receiving and emitting a band signal of 2.4 GHz, and connected to a first band-pass filter and a first switch, and connected to a first power amplifying device and a first balance/imbalance device by switching the switch;

a second transmitting/receiving antenna for receiving and emitting a band signal of 5 GHz, and connected to a second band-pass filter and a second switch, and connected to a second power amplifying device and a second balance/imbalance device by switching the switch;

a high frequency integrated circuit connected to the power amplifying device via the two balance/imbalance devices for receiving the signal transmitted from the first transmitting/receiving antenna and the second transmitting/receiving antenna;

wherein a single frequency synthesizer will

accomplish the modulation and transmission for the signal by applying the mentioned units.

2. The dual band transceiver architecture for wireless communication according to the claim 1, wherein the high frequency integrated circuit comprises a signal receiving portion and a signal emission portion.

3. The dual band transceiver architecture for wireless communication according to the claim2, wherein the signal reception portion comprises:

a receiving frequency selection unit for receiving the signals outputted by the first or second balance/imbalance device and connected to a first high frequency wave-mixing device;

a first high frequency wave-mixing device for receiving the signals outputted by the receiving frequency selection unit and a first high frequency local oscillator and outputting the signals to a first middle frequency amplifying device;

a first middle frequency amplifying device for receiving the signal transmitted by the first high frequency wave-mixing device, amplifying the signal and outputting the amplified signal to a first middle frequency wave-mixing unit;

a middle frequency wave-mixing unit for receiving

the signal outputted by the first middle frequency amplifying device, performing wave-mixing after receiving a signal outputted by an orthogonal distributor, and outputting the signal to a first orthogonal filtering amplifying unit and a second orthogonal filtering amplifying unit;

wherein the down conversion for the signal is accomplished by modulating the signals with different bands.

4. The dual band transceiver architecture for wireless communication according to the claim 3, wherein the receiving frequency selection unit further comprises a first low noise amplifier and a second low noise amplifier.

5. The dual band transceiver architecture for wireless communication according to the claim 3, wherein the first high frequency wave-mixing device further receives the signal outputted by a first high frequency local oscillator.

6. The dual band transceiver architecture for wireless communication according to the claim 3, wherein the first middle frequency wave-mixing unit further comprises a first middle frequency wave-mixing device and a second middle frequency wave-mixing

device.

7. The dual band transceiver architecture for wireless communication according to the claim 3, wherein the first orthogonal filtering amplifying unit further comprises a first low-pass filter and a first programmable gain amplifier.

8. The dual band transceiver architecture for wireless communication according to the claim 3, wherein the second orthogonal filtering amplifying unit further comprises a second low-pass filter and a second programmable gain amplifier.

9. The dual band transceiver architecture for wireless communication according to the claim 2, wherein before the signal emission portion in the high frequency integrated circuit performs the up-conversion, a digital signal processor is used for signal modulation, and then the modulated signal is separately outputted to a first digit-to-analog converter and a second digit-to-analog converter for converting the digital signal into an analog signal, and then the converted signal is separately outputted to the third orthogonal filtering amplifying unit and the fourth orthogonal filtering amplifying unit.

10. The dual band transceiver architecture for

wireless communication according to the claim 9, wherein the signal emission portion comprises:

a third orthogonal filtering amplifying unit and a fourth orthogonal filtering amplifying unit for separately performing the filtering and amplifying for the signal so as to separately output the signal to an emitting frequency selection unit;

an emitting frequency selection unit for receiving the signals outputted by the two different orthogonal filtering amplifying units and then performing the selection for the signal band and processing the middle frequency wave-mixing so as to output two signals with different bands to a first high frequency wave-mixing unit and a second high frequency wave-mixing unit;

a first high frequency wave-mixing unit and a second high frequency wave-mixing unit for receiving the signal outputted by the emitting frequency selection unit and then processing the high frequency wave-mixing for the signal so as to separately output the signal to a first front end amplifier and a second front end amplifier;

a first front end amplifier and a second front end amplifier for separately receiving the signals

outputted by the first high frequency wave-mixing unit and the second high frequency wave-mixing unit and then performing the front end amplifying for the signal so as to separately output the signal to the power amplifying device;

wherein the up-conversion for the signal is accomplished by modulating the signals with different bands.

11. The dual band transceiver architecture for wireless communication according to the claim 10, wherein the third orthogonal filtering amplifying unit comprises a third low-pass filter and a third programmable gain amplifier.

12. The dual band transceiver architecture for wireless communication according to the claim 10, wherein the fourth orthogonal filtering amplifying unit comprises a fourth low-pass filter and a fourth programmable gain amplifier.

13. The dual band transceiver architecture for wireless communication according to the claim 10, wherein the emitting selection unit comprises a second middle frequency wave-mixing unit and a third middle frequency wave-mixing unit.

14. The dual band transceiver architecture for

wireless communication according to the claim 13, wherein the second middle frequency wave-mixing unit comprises a third middle frequency wave-mixing device, a fourth middle frequency wave-mixing device and a first wave-mixing device.

15. The dual band transceiver architecture for wireless communication according to the claim 14, wherein the third middle frequency wave-mixing device receives the signals outputted by the orthogonal distributor and the third orthogonal filtering amplifying unit, and the fourth middle frequency wave-mixing device receives the signals outputted by the orthogonal distributor and the fourth orthogonal filtering amplifying unit.

16. The dual band transceiver architecture for wireless communication according to the claim 13, wherein the third middle frequency wave-mixing unit comprises a fifth middle frequency wave-mixing device, a sixth middle frequency wave-mixing device and a second wave-mixing device.

17. The dual band transceiver architecture for wireless communication according to the claim 16, wherein the fifth middle frequency wave-mixing device receives the signals outputted by the

orthogonal distributor and the third orthogonal filtering amplifying unit, and the sixth middle frequency wave-mixing device receives the signals outputted by the orthogonal distributor and the fourth orthogonal filtering amplifying unit.

18. The dual band transceiver architecture for wireless communication according to the claim 10, wherein after a second high frequency wave-mixing device and a third high frequency wave-mixing device perform the wave-mixing for the high frequency signal, the first high frequency wave-mixing unit will output the signal to a third wave-mixing device.

19. The dual band transceiver architecture for wireless communication according to the claim 18, wherein the second high frequency wave-mixing device receives the signal outputted by the first high frequency local oscillator, and receives the signal outputted by the second middle frequency wave-mixing unit via the controlling of a first switch device.

20. The dual band transceiver architecture for wireless communication according to the claim 18, wherein the third high frequency wave-mixing

device receives the signal outputted by the first high frequency local oscillator, and receives the signal outputted by the third middle frequency wave-mixing unit via the controlling of a second switch device.

21. The dual band transceiver architecture for wireless communication according to the claim 10, wherein after a fourth high frequency wave-mixing device and a fifth high frequency wave-mixing device perform the wave-mixing for the high frequency signal, the second high frequency wave-mixing unit will output the signal to a fourth wave-mixing device.

22. The dual band transceiver architecture for wireless communication according to the claim 21, wherein the fourth high frequency wave-mixing device receives the signal outputted by the first high frequency local oscillator, and receives the signal outputted by the second middle frequency wave-mixing unit via the controlling of a third switch device.

23. The dual band transceiver architecture for wireless communication according to the claim 21, wherein the fifth high frequency wave-mixing device

receives the signal outputted by the first high frequency local oscillator, and receives the signal outputted by the third middle frequency wave-mixing unit via the controlling of a fourth switch device.

24. The dual band transceiver architecture for wireless communication according to the claim 2, wherein after a first local oscillator receives the signal outputted by a first phase lock device, it will oscillate the signal and output the signal to the first high frequency local oscillator and the orthogonal distributor.

25. The dual band transceiver architecture for wireless communication according to the claim 2, wherein the signal reception portion performs the down conversion according to reference band-mixing signals which are 1.5 frequency multiplying and 0.5 frequency multiplying down-converted signals separately outputted by the first local oscillator.

26. The dual band transceiver architecture for wireless communication according to the claim 25, wherein the 1.5 frequency multiplying down-converted signal outputted by the first local oscillator is inputted into the first high frequency

wave-mixing device for band-mixing.

27. The dual band transceiver architecture for wireless communication according to the claim 25, wherein the 0.5 frequency multiplying down-converted signal outputted by the first local oscillator is inputted into the first middle frequency wave-mixing unit for band-mixing.